

1.6.2 Embodied Energy of Studded Exterior Walls in the U.S.

<u>Exterior Wall Type</u>	<u>R-Value</u>	<u>Embodied Energy (MMBtu/SF) (1)</u>	<u>CO2 Equivalent Emissions (lbs/SF)</u>
<u>2x6 Steel Stud Wall (3)</u>			
16" OC with brick cladding	13.46	0.15	20.68
24" OC with brick cladding	14.96	0.15	19.48
16" OC with wood cladding (pine)	13.47	0.06	7.82
24" OC with wood cladding (pine)	14.97	0.06	6.61
16" OC with steel cladding (26 ga)	13.27	0.17	37.02
<u>2x6 Wood Stud Wall (4)</u>			
16" OC with brick cladding	15.73	0.16	18.88
16" OC with PVC cladding	15.60	0.10	9.63
24" OC with steel cladding	15.54	0.18	35.04
24" OC with stucco cladding	15.04	0.09	8.85
24" OC with wood cladding (pine)	15.74	0.07	5.83
<u>Structural Insulated Panel (SIP) (5)</u>			
with Brick cladding	23.93	0.20	20.73
with Steel cladding	23.74	0.22	37.07
with Stucco cladding	23.24	0.13	10.88
with PVC cladding	23.80	0.14	11.48
with Wood cladding	23.94	0.11	7.86

Note(s): Assumptions: 60 year building lifetime. Low rise building. Values are general estimations for the U.S. 1) Embodied Energy: Energy use includes extraction, processing, transportation, construction, and disposal of each material. 2) Resource Use: The weight of raw materials used in extraction, processing, transportation, construction and disposal of each material. 3) Includes cladding, 1" rigid insulation sheathing, batt insulation, vapor barrier, gypsum board, and latex paint. 4) Includes cladding, wood structural panel (WSP) sheathing, batt insulation, vapor barrier, gypsum board, and latex paint. 5) Includes cladding, vapor barrier, gypsum board, and latex paint.

Source(s): Athena Institute. Athena EcoCalculator for Assemblies v.2.3. 2007. Available at www.athenasmi.org/tools/ecoCalculator/index.html